

# Implementation Guidance for the Nationwide Aerial Application of Fire Retardants on National Forest System Lands

The Record of Decision for the *Nationwide Aerial Application of Fire Retardant on National Forest System Land* was signed on December 13, 2011 by the Chief. The Selected Alternative approves the use of aerially applied fire retardant and implements adaptive management that protects resources and continues to improve the documentation of retardant effects through reporting, monitoring and application coordination. Aerial retardant drops are not allowed in mapped avoidance areas for threatened, endangered, proposed, candidate, or sensitive (TEPCS) species or waterways and their 300-foot buffers, except in cases where human life or public safety is threatened and retardant within avoidance areas could be *reasonably expected* to alleviate that threat.

This national direction is mandatory and shall be implemented except in cases where human life or public safety is threatened and retardant use within avoidance areas could be reasonably expected to alleviate that threat. When an application occurs inside avoidance areas for any reason (which is labeled a “misapplication”), it will be reported, assessed for impacts, monitored, and remediated as necessary. In addition, the Chief provides direction that will help better protect important heritage, cultural, and tribal resources and sacred sites, based on site-specific recommendations.

Nothing in the decision changes the way aerially applied fire retardant is used outside of the mapped avoidance areas. All other fire suppression tactics are still available with avoidance areas. The Chief emphasizes that firefighter and public safety continues to be our number one priority.

The Chief approved the following components of the Selected Alternative: *Aircraft Operational Guidance; Avoidance Area Mapping Requirements; Annual Coordination and Reporting and Monitoring; and Modifications Resulting from ESA Section 7 Consultation.*

## Aircraft Operational Guidance

Whenever practical, as determined by the fire incident commander, the Forest Service will use water or other wildland fire chemical suppressants for direct attack or less toxic approved fire retardants in areas occupied by TEPCS species or their designated critical habitats. Some species and habitats require that only water be used to protect their habitat and populations; these habitats and populations have been mapped as avoidance areas. Incident commanders and pilots are required to avoid aerial application of fire retardant in avoidance areas for TEPCS species or within the 300-foot (or larger) buffers on either side of waterways.

When approaching an avoidance area mapped for TEPCS species, waterway, or riparian vegetation visible to the pilot, the pilot will terminate the application of retardant approximately 300 feet before reaching the mapped avoidance area or waterway.

When flying over a mapped avoidance area, waterway, or riparian vegetation, the pilot will wait one second before applying retardant. Pilots will make adjustments for airspeed and ambient conditions such as wind to avoid the application of retardant within the 300-foot or larger buffer or avoidance area.

Cultural resources, including historic properties, traditional cultural resources, and sacred sites will be given case-by-case consideration when ordering the aerial application of fire retardant. As necessary, incident commanders will consider the effects of aerial applications on known or suspected historic properties, any identified traditional cultural resources, and sacred sites. The Forest Service means to use cultural resources specialists, archaeologists, and tribal liaisons to assist in the Forest Service's consideration of effects and alternatives for protection.

These guidelines do not require helicopter or air tanker pilots to fly in a manner that endangers their aircraft or other aircraft or structures or that compromises the safety of ground personnel or the public

## **Avoidance Areas and Mapping Requirements**

During the preparation of the Environmental Impact Statement and through the Endangered Species Act ("ESA") consultation process, maps were developed for avoidance areas including waterways and their 300-foot buffer zones as well as avoidance areas for TEPCS species and their critical habitats. The maps are located at [O:\NFS\Collaboration\FireRetardantEIS\2010 EIS Project Record\EIS\\_Avoidance\\_Maps\R3](O:\NFS\Collaboration\FireRetardantEIS\2010 EIS Project Record\EIS_Avoidance_Maps\R3). The EIS\_Avoidance\_Maps folder contains codes for your forest's maps as well as a legend for the maps. These maps were developed to include all drainages with 300-foot buffers which include all intermittent, interrupted, dry, and various other waterways. Region 3 biologists and fire and aviation specialists determined the incorporated waterways were excessive and did not necessarily protect aquatic wildlife. Although the consultation relied heavily upon the avoidance mapping, it was clear to the U.S. Fish and Wildlife (FWS) that some of the avoidance areas were unnecessary for the protection of aquatic species, e.g., dry washes, etc. Therefore, the maps can be modified in consultation with your local FWS field office.

- Each Forest Supervisor will be responsible for maintaining and updating the avoidance area maps for the applicable National Forest System land area.
- Avoidance maps can be updated or adjusted for TEPCS species or designated critical habitats by Forest Supervisors in consultation with FWS. Mapping changes are allowed if they do not create additional adverse effects than what was analyzed in the Biological Assessment or change the analysis conducted or determinations made in the Biological Opinion.

- Terrestrial and waterway avoidance areas are mapped using the best current information and can be updated as better data becomes available. As this information changes or is updated, the maps can be adjusted.
- Avoidance maps can be updated by Forest Supervisors to include candidate and Forest Service listed sensitive species based on the best current information.
- When there is a discrepancy between the maps and the language in the decision, the language in the decision controls.

### **Aquatic Avoidance Areas**

Waterways will be avoided and are given a minimum of a 300-foot buffer, including perennial streams, intermittent streams, lakes, ponds, identified springs, reservoirs, and vernal pools. Buffer areas may be increased based on local conditions in coordination with the local FWS field office.

The interdisciplinary and biological assessment teams developed maps using the National Hydrography Dataset. It was determined by multi-disciplinary personnel in the Regional Office that these maps are too inclusive of areas that are dry washes, arroyos, other areas that do not contain water during the fire season. The maps may unduly restrict areas that could be used for retardant application during fire management and planning.

Wildlife, fisheries, botanists, fire management personnel, and line officers should inspect the avoidance maps for your unit and cooperatively determine if adjustments need to be made with assistance from GIS personnel prior to the 2012 fire season.

### **Terrestrial Avoidance Areas**

Terrestrial Avoidance Areas will be used to avoid impacts on one or more federally-listed threatened, endangered, or proposed plant or animal species or critical habitat where aerial application of fire retardant may affect habitat and/or populations; or, any Forest Service terrestrial sensitive or candidate species where aerial application of fire retardant may result in a trend toward federal listing under ESA or a loss of viability in the planning area. The Forest Service used the following protocols to generate a standardized, national map template of avoidance areas for TECPS species and will revise that template as appropriate. At this time all national forests and grasslands that have affected TECPS species have completed this mapping. These protocols will be used for annual updates:

- Use FWS-designated critical habitat layers when available. These layers can be found at <http://criticalhabitat.fws.gov/crithab/>.
- Use the National Hydrography Dataset for mapping water bodies to create aquatic avoidance areas.
- Use FWS and Forest Service species population and designated critical habitat information for occupied sites.

- Update maps annually in cooperation with the FWS to reflect changes during the year on additional species or changes made for designated critical habitat.
- Annual revisions to the maps will be maintained by the Forest Service.

## **Map Avoidance Area Guidance for 2012 Fire Season**

The ROD requires the Forest Service to map terrestrial and aquatic avoidance areas and update the maps each year for certain federally listed threatened, endangered, and Forest Service-sensitive species as needed, so that fire retardant will not be aerially applied to those areas. GSTC prepared a national set of 7 ½ minute quadrangle maps that illustrate both the aquatic avoidance areas and buffered areas along waterways.

It was determined by multi-disciplinary personnel in the Regional Office that the maps developed by GSTC using a hybrid of the National Hydrography Dataset and FS Topo may be unduly restrictive for the Forests in the Southwestern Region because too much of the landscape was covered by avoidance areas. It seemed impractical to effectively utilize fire retardant while attempting to comply with superfluous avoidance areas. Therefore, those maps have been modified to eliminate dry washes, arroyos, and other areas (intermittent and ephemeral channels) that do not contain water during the fire season. The new revised maps are located at [http://cdb.fs.usda.gov/content/dav/fs/NFS/Collaboration/FireRetardantEIS/2010%20EIS%20Project%20Record/EIS\\_Avoidance\\_Maps/R3/R3\\_Revised\\_No\\_Ephemeral\\_Intermittent](http://cdb.fs.usda.gov/content/dav/fs/NFS/Collaboration/FireRetardantEIS/2010%20EIS%20Project%20Record/EIS_Avoidance_Maps/R3/R3_Revised_No_Ephemeral_Intermittent).

In addition to the revised water avoidance polygons, the maps contain the species avoidance areas as they were analyzed in the NEPA and ESA documents. Please review the maps to determine whether federally-listed species are still adequately protected from retardant drops based on the changes to the water avoidance area changes. This primarily applies to aquatic, semi-aquatic, or riparian species that may occur within the areas removed. Only additional areas should be added to protect sites occupied by T&E or sensitive species that were either missed during the initial mapping process or those sites that had avoidance areas removed due to the dry washes, arroyos and other areas eliminated from the maps. If there are species polygons or areas that need to be added, make the changes to the GIS feature class located at the Enterprise Data Warehouse called S\_USA.Aerialfireretardantavoidance. Information regarding the revisions to the avoidance areas will be provided to the U.S. Fish and Wildlife Service (FWS) by Regional Office staff for concurrence. The information will be reviewed by the FWS to determine if the effects determinations remain the same under the Biological Opinion issued in December 2011. Once a concurrence letter is received from the FWS, it will be transmitted to the forests.

Current shape files of the modified water and current species avoidance areas will be submitted by RO staff to the dispatch offices and downloaded into the WildCad system so that aircraft dispatchers can provide direction on avoidance areas during initial attack to local line officers, incident commanders, and incoming aviation resources. Modified species avoidance shape files for your respective units should be finalized and submitted to your local dispatch office before March 30, 2012.

## Reporting and Monitoring Requirements

The Forest Service will report to FWS all misapplications of aerially applied fire retardant. The report and assessment of impacts will determine necessary mitigation measures, remediation action, monitoring needs, and whether there is a need for reinitiation of formal consultation. Depending on the severity of the adverse effect, an appropriate restriction on future aerial application of retardant may be necessary for the reported area.

To help in determining whether under-reporting of fire retardant misapplication is occurring, the Forest Service will annually assess 5 percent of all fires that are less than 300 acres in size and during which aerially delivered fire retardant had been used and aquatic or terrestrial avoidance areas exist.

Reporting and monitoring of misapplications of fire retardant will be outlined within an *Implementation Handbook for the Final Environmental Impact Statement for the Nationwide Aerial Application of Fire Retardant on National Forest System Land*. The monitoring components that are reported annually through national forests and national TES species staff for coordination with other agencies will include the following:

- Be conducted in coordination with local Forest Service/FWS/NOAA/US Geological Survey (USGS) offices and appropriate State agencies.
- Determine the necessary recovery, restoration, or remediation actions for the species or habitats.
- Determine the appropriate contingency measures for protection of TEPCS species from aerially applied fire retardant.
- Determine the amount of follow-up monitoring necessary as dictated by the extent of the impacts to species or habitats identified during assessment of the misapplication.
- Determine if an assessment of cumulative effects for certain species is necessary and is conducted and coordinated with appropriate agencies.

If a retardant drop occurs on a cultural resource, traditional cultural property, or sacred site, the site condition will be assessed by a qualified archaeologist and reported to the respective State Historic Preservation Officer and, if appropriate, tribal representatives that may include a Tribal Historic Preservation Officer. Tribal notification and consultation is required if the affected resource is a sacred site or traditional cultural property. If the effect is found to be adverse, the agency will consult with the tribe to determine an appropriate course of action to mitigate or resolve the adverse effect. Existing monitoring and reporting forms will be updated, as needed, for use in the reporting and monitoring process.

### Misapplication Reporting/Monitoring

- A misapplication is ‘the accidental or intentional aerial application of fire retardant into a waterway, within the 300-foot buffer, or within an avoidance area.’

- Forest Service will train and inform firefighters concerning reporting of misapplication as well as the location of avoidance areas.
- Misapplications will be reported, assessed for impacts, monitored, and remediated as necessary. The reporting form and checklist can be found in Appendix M of the Biological Opinion.
- The Agency Administrator is responsible to ensure appropriate coordination with FWS and reporting are initiated and completed including assessment of impacts, remediation, follow-up monitoring, and re-initiation of consultation if take is exceeded.
- Forest Service will annually assess 5% of all fires less than 300 acres in size (1 fire per Forest, per year) where aerial retardant has been used and aquatic or terrestrial avoidance areas exist.
- The Forest Service will continue to monitor *all large fires* (>300 acres) where aerial retardant is used and avoidance areas exist.

## Modifications Resulting from ESA Section 7 Consultation

The FWS has issued terms and conditions reasonable and prudent measures that provide additional opportunities to minimize impacts to specific species. The Forest Service has agreed to accept these terms and conditions as part of the action. Conservation recommendations provided in the Biological Opinions will be implemented when possible to assist in recovery actions.

The Forest Service and the FWS analyzed the environmental effects of the alternatives on a nationwide, programmatic scale. At that scale, it is impossible to predict accurately where the Forest Service will use the aerial application of fire retardant as a firefighting tool, when the Forest Service will drop fire retardant, or how much fire retardant the Forest Service will use. The Selected Alternative uses enhanced ESA consultation to mitigate that uncertainty (FEIS pages 22-23). Local Forest Service and FWS offices mapped terrestrial avoidance areas at the local level for known locations based on the analysis used for the potential effects on TEPCS and their known habitats.

Completing surveys for all the effected TEPCS on all 193 million acres in the National Forest System would allow the Forest Service to develop a more robust set of avoidance areas, but that survey would cost an exorbitant amount of money. Without the surveys, it is possible that the Forest Service would drop retardant from the air onto TEPCS species or their habitats. Nevertheless, because the FWS analyses in their biological opinion concluded that Selected Alternative would not jeopardize any threatened or endangered species, any drops in unknown areas with TEPCS species or their habitats is unlikely to jeopardize those species. Finally, as project-level surveys or other methods make new data available, the Forest Service and FWS

will consider that new information during the annual review and will consider adding an avoidance area or increasing the size of an existing avoidance area.

## Incidental Take

- The Southwestern Region was assigned Incidental Take which needs to be tracked by each Forest for the following species:
  - Apache trout
  - Chihuahua chub
  - Chiricahua leopard frog
  - Desert Pupfish
  - Gila chub
  - Gila topminnow
  - Gila trout
  - Little Colorado spinedace
  - Loach minnow
  - Mexican spotted owl
  - New Mexico ridge-nosed rattlesnake
  - Sonora chub
  - Sonoran tiger salamander
  - Spikedace
  - Three Forks springsnail
  - Yaqui catfish
  - Yaqui chub
  
- Some, but not all, of the species with Incidental Take Statements (ITS) contain Reasonable and Prudent Measure (RPMs) with non-discretionary Terms & Conditions (T&Cs) that shall be implemented in order to remain compliant with the ESA. The species with T&Cs include the following:
  - Chihuahua chub
  - Gila trout
  - Mexican spotted owl
  - New Mexico ridge-nose rattlesnake
  - Sonora tiger salamander
  - Three Forks springsnail
  
- If incidental take is determined to be exceeded for any species on your forest, you shall re-initiate consultation for the use of aerially-applied fire retardants on your forest.

## CONSERVATION MEASURES

The proposed action includes the following policies and procedures to minimize the risk of fire retardant products reaching aquatic habitats, and is based on information in the BA and discussions with USFS staff. These conservation measures were incorporated into the selected alternative and, therefore, are part of the proposed action. The conservation measures are non-



discretionary and must be implemented to be compliant with the biological opinion, particularly if the species is listed.

### **General Conservation Measures**

Avoid aerial application of retardant on mapped avoidance areas for threatened, endangered, or proposed species, or within 300 feet of waterways, including species-specific avoidance mapping (USFS 2011a). Coordinate with local Fish and Wildlife Service (Service) offices each year prior to the onset of the fire season to ensure avoidance areas are up to date and appropriate contingency measures are identified. Implement monitoring and reporting procedures for misapplication of retardant.

### ***Three Forks Springsnail***

- Establish a 1,200 foot (366 m) buffer/avoidance area (600 feet or 183 m from either side of the waterway) around Boneyard Creek from Boneyard Bog Springs downstream to Three Forks Springs.
- Assist the Forest Service and AZGFD in the continued development and adoption of a Three Forks springsnail salvage protocol whereby springsnails may be removed and placed into facilities for repatriation stock. This salvage plan shall be in place prior to the onset of the 2012 fire season.
- Assist the Service and AZGFD in the continued development and maintenance of a Three Forks springsnail captive rearing program in order to provide stock for repatriation. Assistance shall include locating suitable rearing sites, funding where appropriate, technical input, and policy guidance. This captive rearing program shall be in place prior to the 2014 fire season.

### ***Ipomopsis sancti-spiritus*** - Holy Ghost ipomopsis

Proposed action now includes the following conservation measures for Holy Ghost ipomopsis:

- Wherever practical, the USFS shall prioritize fuels reduction projects within Holy Ghost Canyon and areas that the USFS determines will reduce the risk of fire and the need to use aerially applied fire retardants within habitat occupied by Holy Ghost ipomopsis.
- Whenever practical, USFS will use water or other less toxic fire retardants than those described in the proposed action within a 0.5-mile avoidance zone around the habitat occupied by Holy Ghost ipomopsis.
- USFS will coordinate with the New Mexico Ecological Services Field Office each year prior to the onset of the fire season to ensure that: 1) up-to-date information is incorporated in local fire planning and distributed to appropriate resources by the local Fire Management Officer; 2) maps and information are made available to incident commanders and fire teams for the purposes of avoiding application of retardants to Holy Ghost Canyon, whenever possible, including use of best available technologies to avoid areas occupied by the species and 3) any other appropriate conservation measures are included to avoid the likelihood of jeopardizing the species. Such measures may include enhancement of populations or other appropriate contingency measures.



### **Conservation Recommendations**

The Conservation Recommendations located in the Biological Opinion are discretionary actions that may be implemented by the Forest Service. If any of these actions are implemented, please report this to your local FWS field office.

#### ***Canelo Hills Ladies' Tresses***

- We recommend that USFS participate in efforts to identify and conserve Canelo Hills ladies' tresses throughout its range, including participation in forums that address the control of invasive, exotic plants.

#### ***Chihuahua Chub***

- In cooperation with other state conservation agencies, Forest Service research stations, Service, and ongoing research efforts, monitor Chihuahua chub populations on Gila National Forest lands based on recommendations provided by the Gila Trout and Chihuahua Chub Recovery Team.

#### ***Gila Trout***

- Manage riparian areas in watersheds occupied by Gila trout in order to eliminate direct effects and minimize indirect effects.
- Cooperate with state conservation agencies to eliminate the introduction and current presence of nonnative salmonid species within Gila trout habitat

#### ***Huachuca Water Umbel***

- We recommend that USFS participate in efforts to identify and conserve HWU throughout its range, including participation in forums that address the control of invasive, exotic plants.

#### ***New Mexico ridge-nosed rattlesnake***

- Initiate studies to determine the effects of chemical fire retardants on the montane rattlesnakes and their habitat.
- Following containment of a wildfire that burned New Mexico ridge-nosed rattlesnake habitat, if a BAER plan is developed, coordinate with U.S. Fish and Wildlife Service Biologists to incorporate actions that benefit the species.

### *Sonora chub*

- We recommend that the USFS investigate the development of and transition to the application of effective fire retardants that are not toxic to terrestrial and aquatic life.

### *Three Forks springsnail*

- The ASNF should move forward with plans to designate the Three Forks Recommended Research Natural Area and Associated Features (USFS 2011b). This designation would substantially contribute to the conservation of the Three Forks springsnail.
- The ASNF should conduct additional surveys within Boneyard Creek and North Fork East Black River watersheds to determine if the species occurs in other springs.

### **Managing Wildfires**

- Forest Supervisors/District Rangers continue to assign Resource Advisors to fires to ensure resource protection requirements are known and followed, which includes using water only at times.
- Where necessary, resource protection requirements, avoidance areas, and reporting responsibilities would be incorporated into the Delegation of Authority given to Incident Commanders.
- Wherever practical, prioritize fuels reduction projects for lands that are in close proximity to areas designated critical habitat or occupied by species so as to reduce the need to use aerial fire retardant.
- Discussion of alternative tactical strategies should take place on the units in advance of fire season as well as coordination with cooperators. This alternative ensures Forest service will work at the local level with cooperators in establishing fire strategies and tactics in areas of WUI at risk of fire activity within or near avoidance areas

## Threatened and Endangered Species Lists by Forest (List may not include all Sensitive Species yet)

- Avoidance areas are required in the Southwestern Region for the following species:

### *Apache -Sitgreaves NFs*

- Three Forks springsnail
- Southwestern willow flycatcher – all populations and critical habitat
- Chiricahua leopard frog – all known populations and critical habitat
- New Mexico meadow jumping mouse – all known populations
- Long-tailed vole – all known populations
- Arizona montane vole – all known populations
- Water shrew – all known populations

### *Carson NF*

- None

### *Cibola NF*

- Zuni fleabane cactus

### *Coconino NF*

- Arizona cliffrose
- Chiricahua leopard frog and proposed critical habitat
- Gila chub and critical habitat
- Gila topminnow
- Little Colorado spinedace and critical habitat
- Spinedace and proposed and designated critical habitat
- San Francisco Peaks groundsel
- Loach minnow – all known populations and proposed and designated critical habitat

### *Coronado NF*

- Canelo Hills ladies' tresses
- Chiricahau leopard frog
- Desert pupfish(?)
- Gila chub

- Gila trout(?)
- Gila topminnow(?)
- Huachuca water umbel
- New Mexico ridge-nosed rattlesnake
- Pima pineapple cactus
- Sonora chub
- Sonora tiger salamander
- Yaqui catfish
- Yaqui chub

*Gila NF*

- Chihuahua chub
- Chiricahua leopard frog
- Gila chub
- Gila trout
- Loach minnow
- Spikedace

*Kaibab NF*

- Apache trout

*Lincoln NF*

- Kuenzler hedgehog cactus
- Sacramento prickly poppy
- Sacramento mountains thistle
- Todsen's pennyroyal

*Prescott NF*

- Desert pupfish(?)
- Gila chub
- Gila topminnow(?)
- Gila trout
- Spikedace
- Loachminnow

*Santa Fe NF*

- Holy Ghost ipomopsis

*Tonto NF*

- Arizona cliffrose
- Arizona hedgehog cactus
- Chiricahua leopard frog
- Desert pupfish
- Gila chub
- Gila topminnow
- Loach minnow
- Spikedace